



Third West Weekly Report Shepherd, Michael

to:

Joyce Ackerman, 'Craig Barnitz (cbamitz@utah.gov)' 11/30/2011 09:22 AM

**Hide Details** 

From: "Shepherd, Michael" < Michael. Shepherd@PacifiCorp.com>

To: Joyce Ackerman/R8/USEPA/US@EPA, "'Craig Bamitz (cbamitz@utah.gov)'" <cbamitz@utah.gov>

#### 5 Attachments











Weekly Report 11-21 to 11-23.pdf Third West Weekly Log 2011-47.pdf 224716-1.pdf 224794-1.pdf 224878-1.pdf

Joyce & Craig,

Attached are the reports for the week of November 21, 2011.

All air monitoring results came back negative.

Please let me know if you have any questions.

Thanks,

Mike Shepherd
Project Manager
Rocky Mountain Power - Major Projects
801.220.4584 Office
801.631.1310 Cell
801.220.2797 Fax
michael.shepherd@pacificorp.com



November 23, 2011

Laboratory Code:

RES NA

Subcontract Number: Laboratory Report:

RES 224716-1

Project # / P.O. #
Project Description:

None Given Rocky Mtn. Power 3rd

West Sub Station

David Roskelley R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 224716-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr

President

#### RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

#### TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

**RES Job Number:** 

RES 224716-1

Client:

R & R Environmental

Client Project Number / P.O.: None Given

**Client Project Description:** 

Rocky Mtn. Power 3rd West Sub Station

**Date Samples Received:** 

November 22, 2011

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

**Date Samples Analyzed:** 

November 23, 2011

Client	Lab		Area	Air	Number of	Analytical	Asbestos	Filter
ID Number	ID Ni	umber	Analyzed	Volume Sampled	Asbestos Structures Detected	Sensitivity	Concentration	Loading
			(mm²)	. (L)		(s/cc)	(s/cc)	(s/mm²)
3W112111-E	EM	827626	0.1000	826	ND	0.0047	BAS	BAS
3W112111-S	EM	827627	0.0800	97 <b>3</b>	ND	0.0049	BAS	BAS
3W112111-N	EM	827628	0.0800	97 <b>1</b>	ND	0.0050	BAS	BAS
3W112111-W	EM	827629	0.0800	970	ND	0.0050	BAS	BAS

NA = Not Analyzed

Filter Material = Mixed Cellulose Ester

ND = None Detected

Filter Diameter = 25 mm

BAS = Below Analytical Sensitivity Average Grid Opening in mm<sup>2</sup> = 0.010 Effective Filter Area = 385 sq mm

Digitally signed by Elisha Ellennan O = Reservoirs Environmental, Inc.

DATA QA





# 3<sup>RR</sup> WEST SUBSTATION REMEDIATION PROJECT HEALTH SAFETY MANAGER (HSM)

			DAILY CHECKLIST
DA	TE	:	11/21/11
	Ca	manal	
	<u>Ge</u>	<u>neral</u>	Work area Health and Safety Inspection
	NA		Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
	117		activities for the day
	NA		Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
	NA	<b>\</b>	Site hazard and safety instruction for all first time employees, contractors or visitors
	NA	<b>\</b>	Complete Employee Meeting Record Form B (where applicable
	NA	Docun	nent required Respirator Training completion with Form H
V			Record times and numbers of dump trucks and trailers as they leave the site with
			contaminated material.
		Confir	m return of waste material manifest documents for each load with site manager.
NA		Compl	ete all CSHASP Forms (for applicable activities planned for that day)
		NA	Illness/Injury Report Form A
		NA	Site-Specific Training Record Form C
		NA	Hot Work Permit Form D
		NA	Trench/Evacuation Permit Form E
		NA	Combined Space Entry Permit From F
			Exclusion zone operations are practiced as instructed.
			Decontamination unit is working properly.
		<b>☑</b> ·	Workers are using decontamination unit as instructed.
			Workers use personal protective equipment properly.
	☑		Set air samples at cardinal compass points around exclusion zone. Check
	_		throughout the day to ensure proper operation.
			Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
			Review sign-in/sign-out log throughout and at the end of the workday.
	$\overline{\mathbf{Q}}$		Secure the site at the end of the workday
	Sai	mpling	
NA	1		Soil Confirmation sampling for any newly excavated areas
V			Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusions zone
	NA	1	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
	NA		Digitally photograph each sample location and at any place field sampling personnel





Electronically file photo files into the on-site database
Complete Field Documentation
Field Sample Data Sheets (FSDS)
Logbook
On-site computer database
Label each sample media with a unique number
Seal sample(s) in zip lock plastic bags
Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
Review and disseminate sample results as received from the laboratories to Project
Manager and other appropriate managers and employees
Electronically file sample reports into on-site database



### 3<sup>rd</sup> West Substation Site Project Safety Audit

Project: 3rd West Sub Station		Date: 11/21/11				
Location:	3rd West, 1st South, SLC	Job Number:				
Survey Condi	ucted By: _Justin Kargis					
		In Compliance	Out of Compliance	N/A	Corrective Action Taken and	
Standard	Title				Date	
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x		
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			x		
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.		,	х		
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			х		
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toeboards shall be installed.			x		
1926.100 (a)	Head protection, where there is a possible danger of head injury.	х				

Standard	<i>Tit</i> le	☐ In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
3 tunuu 1 u		_			
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			х	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.	x			
1926.20 (b)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			х	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toeboards.	·		x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	<b>D</b> ebris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.		·	x	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			х	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			x	
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.			x	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	<i>Tit</i> le				Date
1926.451 (a)	Scaffolding shall have guardrails and toeboards when more than 10 feet high and when less than 45 inches of work space.			x ,	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			x	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	<b>x</b>			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.			x	
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.			х	
1926.102 (a) (1)	Eye and face protection shall be provided.	x			·
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.			х	
1926.350 (a) (9)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			х	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			Х	
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.		•	х	
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			x .	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.			x	
1926.451 (a)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.	İ	<u>.</u>	x	
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x	
1926.404 (f)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer of the tool is double insulated.			x	
1926.556 (b)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			х	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			х	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title .				Date
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.		i.	x	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	х .	,		
1926.451 (a)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			х	
1926.550 (b)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			х	

#### Comments:

While R&R was away from the site for about 15 minutes, Newman construction began digging in what was to become the exclusion zone in the central area of the sub station. This excavation involved disturbing native soil potentially contaminated with vermiculite and was conducted without communication to R&R, CVE, or Rocky Mountain Power. Newman was using an excavator to remove large concrete footings and soil without respiratory protection or protective clothing (Tyvek®), and the exclusion zone had yet to be completely set up and activated where they were digging. When R&R addressed a employee from Newman about exclusion zone procedures, the Newman employee became upset and halted work. This all took place between 8:40-9:15 am and this excavation work was suspended until the exclusion zone was active later in the afternoon around 13:30. At that point, Newman employees suited up with protective clothing and respirators, entered through the decontamination zone, and observed exclusion zone procedures.

CVE continued working on forms for concrete pours planned for 11/24.





### 3<sup>RD</sup> WEST SUBSTATION REMEDIATION PROJECT

## **HEALTH SAFETY MANAGER (HSM)**

	DAILY CHECKLIST
DATE:	11/22/11
<u>General</u>	
	Work area Health and Safety Inspection
NA	Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
	activities for the day
NA	Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
NA	Site hazard and safety instruction for all first time employees, contractors or visitors
NA	Complete Employee Meeting Record Form B (where applicable
NA	Document required Respirator Training completion with Form H
NA	Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
NA	Confirm return of waste material manifest documents for each load with site manager.
NA	Complete all CSHASP Forms (for applicable activities planned for that day)
NA	Illness/Injury Report Form A
NA	Site-Specific Training Record Form C
NA	Hot Work Permit Form D
NA	Trench/Evacuation Permit Form E
NA	Combined Space Entry Permit From F
NA	Exclusion zone operations are practiced as instructed.
	NA Decontamination unit is working properly.
	NA Workers are using decontamination unit as instructed.
١	NA Workers use personal protective equipment properly.
$\square$	Set air samples at cardinal compass points around exclusion zone. Check
_	throughout the day to ensure proper operation.
Ø	Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
$\square$	Review sign-in/sign-out log throughout and at the end of the workday.
Ø	Secure the site at the end of the workday; PacifiCorp Employee
Sampling	<b>ξ</b>
NA	Soil Confirmation sampling for any newly excavated areas
NA	Stationary Air Monitoring during contaminated soil removal around the perimeter of the
	exclusions zone
NA	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
, NA	Digitally photograph each sample location and at any place field sampling personnel determined necessary





NA	Electronically file photo files into the on-site database
$oldsymbol{oldsymbol{\square}}$	Complete Field Documentation
$\square$	Field Sample Data Sheets (FSDS)
$\square$	Logbook
NA	On-site computer database
abla	Label each sample media with a unique number
abla	Seal sample(s) in zip lock plastic bags
Ø	Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
Ø	Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
Ø	Review and disseminate sample results as received from the laboratories to Project
	Manager and other appropriate managers and employees
NA	Electronically file sample reports into on-site database



### 3rd West Substation Site **Project Safety Audit**

Location: 3rd West Sub Station  Survey Conducted By: Jon Craig		Jo	Job Number: Title:  IH Technician						
		In Compliance	Out of Compliance	N/A	Corrective Action Taken and				
Standard	Title				Date				
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x					
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			х					
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	x	,						
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			x	·				
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toeboards shall be installed.			x					
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x							

Standard 1926.652 (a)	Title  Excavation protective systems; examination by competent person when less than 5 feet in	x In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
(1) 1926.20 (b) (2)	depth.  Employer responsibility to initiate and maintain safety and health programs.	x			
1926.20 (b)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.	x			
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toeboards.	•		x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.	x			
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			X	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.	x			
1926.403 (b)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	х			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (4)	Scaffolding shall have guardrails and toeboards when more than 10 feet high and when less than 45 inches of work space.			x	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			х	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	x			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.	х			
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.	х			·
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	х			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.	х			
1926.102 (a) (1)	Eye and face protection shall be provided.	x			· ,
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			
1926.350 (a) (9)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½" fire resistance barrier.	x			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title			$\Box$	Date
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			x	,
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	х			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			х	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.			x	
1926.451 (a)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.			x	
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.		·	х	
1926.404 (f) (7)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x		^	
1926.556 (b)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.	-		х	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			x	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title	Image: square of the property of			Date
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			x	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x			·
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			X	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.	x			

#### Comments:

CVE pouring transformer retaining wall and several other footings in the main excavated pit. Exclusion zone is active. No disturbance of contaminated soil occurred today in the exclusion zone.





### 3<sup>RD</sup> WEST SUBSTATION REMEDIATION PROJECT

# **HEALTH SAFETY MANAGER (HSM)**

			DAILY CHECKLIST
DA	TE	:	11/23/11
		neral	Work and Health and Safatu Inspection
	☑ NA	<b>\</b>	Work area Health and Safety Inspection Review and if necessary update Activity Hazard Analyses (AHA) based on planned site activities for the day
			Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
	NA NA	1	Site hazard and safety instruction for all first time employees, contractors or visitors  Complete Employee Meeting Record Form B (where applicable
Ø	INA		nent required Respirator Training completion with Form H Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
NA			m return of waste material manifest documents for each load with site manager. ete all CSHASP Forms (for applicable activities planned for that day) Illness/Injury Report Form A Site-Specific Training Record Form C Hot Work Permit Form D Trench/Evacuation Permit Form E Combined Space Entry Permit From F
			Exclusion zone operations are practiced as instructed.
		<b>☑</b>	Decontamination unit is working properly.  Workers are using decontamination unit as instructed.
			Workers use personal protective equipment properly.
	<b>I</b>		Set air samples at cardinal compass points around exclusion zone. Check throughout the day to ensure proper operation.
	<u>_</u>		Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
	Ø		Review sign-in/sign-out log throughout and at the end of the workday.  Secure the site at the end of the workday
	Saı	mpling	
NA ☑			Soil Confirmation sampling for any newly excavated areas Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusions zone
	NA		Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
	NA		Digitally photograph each sample location and at any place field sampling personnel





ablaElectronically file photo files into the on-site database ablaComplete Field Documentation ablaField Sample Data Sheets (FSDS)  $\square$ Logbook On-site computer database NA  $\square$ Label each sample media with a unique number  $\square$ Seal sample(s) in zip lock plastic bags ablaComplete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory ablaPackage samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples NA Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees Electronically file sample reports into on-site database NA



### 3<sup>rd</sup> West Substation Site Project Safety Audit

Project: 3rd West Sub Station		Date: 11/23/11					
Location:	3rd West, 1st South, SLC		Jo	b Nu	ımber:		
Survey Conducted By: <u>lustin Kargis</u>			Ti	tie: _			
		In Compliance	Out of Compliance	N/A	Correct <i>ive Ac</i> tion T <i>ake</i> n and		
Standard	Title				Date		
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			х			
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			x			
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.			х			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.		,	x			
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toeboards shall be installed.		·	х			
	Head protection, where there is a possible	<sub>x</sub>					

1926.100 (a)

danger of head injury.

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title ·				Date
1926.652 (a)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			х	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.	x			•
1926.20 (b)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			х	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toeboards.			х	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			х	
1926.25 (a)	<b>D</b> ebris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	·
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			x	_
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			x	
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.			х	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (4)	Scaffolding shall have guardrails and toeboards when more than 10 feet high and when less than 45 inches of work space.			х	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			x	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	х			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.			x	
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.			х	
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.			х	
1926.350 (a) (9)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			х	

Standard	Title	In Compliance	Out of Compliance	U/A	Corrective Action Taken and Date
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			X	
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.			x	
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			х	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.			<b>x</b>	
1926.451 (a)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.			x	
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x	
1926.404 (f)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer of the tool is double insulated.			x	
1926.556 (b)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			x	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			x	

•

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.		·	х	·
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x			·
1926.451 (a)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	
1926.550 (b)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			x	

#### Comments:

Newman employees entered and began work in exclusion zone through the north gate of the substation. They did not use the decontamination zone, respiratory protection, or protective clothing while beginning their work. R&R (Justin) entered the EZ through the decontamination zone wearing a respirator and protective clothing to examine areas that had been excavated. A Newman worker was approached and directed to follow exclusion zone protocols. He became quite upset and instructed his co-workers to get ready to exit the EZ. They (Newman) drove their truck out of the north gate and proceeded to follow correct procedures by suiting up, using respirators, and entering the EZ through the decontamination unit. This had all taken place by about 8:30 am. R&R then approached the same Newman employee about communicating exclusion zone rules and the employee did not want to discuss any further.

In the early afternoon, Newman needed to exchange one of the excavators that had been used up to that point for a different one. In order to do this, they had to open the north gate of the EZ to bring in the replacement equipment and load the existing excavator. Prior to doing this, a Newman employee asked R&R to enter the exclusion zone to examine where they needed to take care of the unloading. R&R declined and indicated that in the exclusion zone was active and

would not enter unless through the decontamination unit. Newman proceeded with exclusion zone protocol after this point but they were again quite upset with being corrected.

Newman was instructed to cover excavations with plastic and gravel and upon doing this to the best of their capability, the sub station was secured for the Thanksgiving holiday weekend.



РНОТО 1



РНОТО 2



РНОТО 3



РНОТО 4

### R & REnvironmental, Inc.

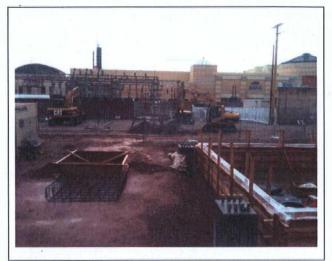
47 West 9000 South, Suite #2, Sandy, Utah 84070 (801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

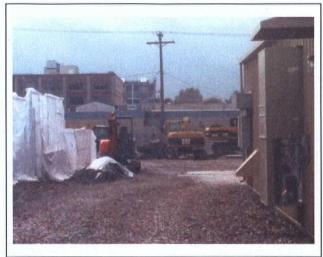
DESIGNED BY:	SCALE:	REVIEWED BY: DCR	
DRAWN BY: JMK	DATE: 11-21-11	FILE:	

SITE PHOTOGRAPHS

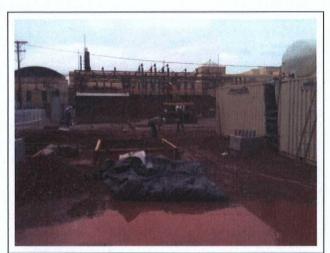




РНОТО 1



РНОТО 2



РНОТО 3

### R & REnvironmental, Inc.

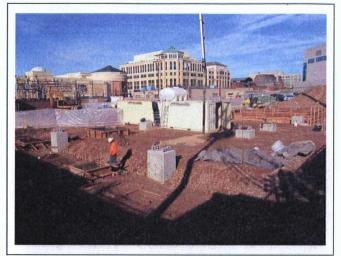
47 West 9000 South, Suite #2, Sandy, Utah 84070 (801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:	SCALE:	REVIEWED BY: DCR	
DRAWN BY: JMK	DATE: 11-21-11	FILE:	,

SITE PHOTOGRAPHS

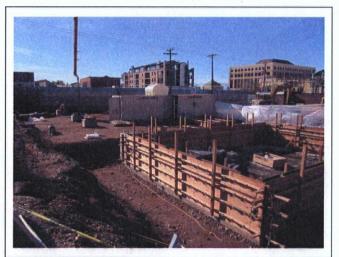




РНОТО 1



РНОТО 2



РНОТО 3



РНОТО 4

### R&R Environmental, Inc.

47 West 9000 South, Suite #2, Sandy, Utah 84070 (801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:

SCALE:

REVIEWED BY:
DCR

CREATED BY:
JRWC

REVIEWED BY:
DCR

FILE:

SITE PHOTOGRAPHS





РНОТО 1



РНОТО 2



РНОТО 3



РНОТО 4

### R & REnvironmental, Inc.

47 West 9000 South, Suite #2, Sandy, Utah 84070 (801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:	SCALE:	REVIEWED BY: DCR	
DRAWN BY: JMK	DATE: 11-23-11	FILE:	

#### SITE PHOTOGRAPHS

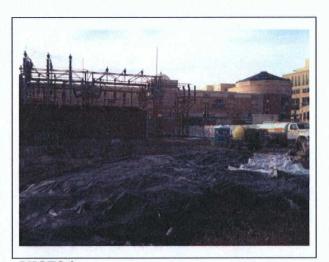




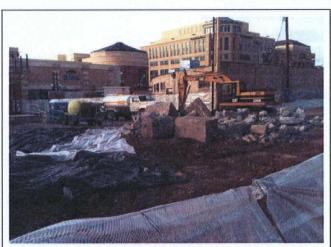
РНОТО 1



РНОТО 2



РНОТО 3



РНОТО 4

### R & REnvironmental, Inc.

47 West 9000 South, Suite #2, Sandy, Utah 84070 (801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:	SCALE:	REVIEWED BY: DCR	
DRAWN BY:	DATE: 11-23-11	FILE:	

#### SITE PHOTOGRAPHS



### PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME:	Third <b>W</b> e	st Sub - Rebuild	DATE : Monda	y, November 2	1, 2011
PO & Work Order NO. :	3000078	050 / 10035803	MAIN CONTRACTOR	: Cache Valle	y Electric
Crew Start Time:	6:45	Crew Stop Time:	17:10	Tot Hrs mns:	10:25
FCR Start Time:	6:45	FCR Stop Time:	17:15	Tot Hrs mns:	10:30
Use military time format 00:					
		,			
WEATHER CONDITIONS	<u> </u>	Rainy a	nd 34 degrees in AM		
		comments, instructions to			
completed the setup of the DE CVE electrical crew hooked us squared up the walls for the o After completing the DECON and washed the concrete in p	ECON conexes and p p the service and ran il containment, draine facility and erecting the reparation for remova the process for determ	grade for the north circuit breaker laced water in the water supply wire into the DECON. CVE fated water from the oil containment he fence between the clean zonal from the site to their pit where mining whether we can pour the = 1.	tank. CVE line crew ran a so o crew completed placing reb at and tied rebar for future sp e and the exclusion zone, Ne the concrete will be crushed	ervice triplex to the ar for the spread read footing found wman removed to Received e-ma	e DECON. footer mats dations. foundations ils regarding
IF WORKING IN ENERGIZ Dispatcher login, name and til	me: Kim Batt 064				
Dispatcher logout, name and	time: Kim Batt 17				
DISCREPANCIES:			IMMEDIATE CORRECTIV	/E ACTION TA	KEN:
No resolution on the 20' ground ro	od issue.				
				<del></del>	
` <u>-</u>			<del></del>		
DELAYS OR LOST TIME	ENCOUNTEDED:				
	ENGOGNIERED.				
EQUIPMENT (working, de	elivered idle).				
CVE fab crew: Portable toilet (2),	forklift, 2 dumpsters, of	fice trailer, conex , exclusion zone c at, power washer, water truck, com		boom truck (2). Ne	ewman:
OSHA Recordable Safety	Incidents:		Reported	by: 1	 Ti <b>m</b> e:
			1.550166	<u> </u>	



Russ Johnson

### PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME:	Third West	Sub - Rebuild	DATE : Tuesda	y, November 22	2, 2011
PO & Work Order NO. :	300007805	0 / 10035803	MAIN CONTRACTOR:	Cache Valley	Electric
Crew Start Time:	6:45	Crew Stop Time:	16:45	Tot Hrs mns:	10:00
FCR Start Time:	6:50	FCR Stop Time:	17:10	Tot Hrs mns:	10:20
Use military time format 00:00					
•					
WEATHER CONDITIONS:	Pa	rtly Cloudy and 32 degrees	in AM, Sunny and 45 de	grees in the PN	1
DESCRIPTION: (work perfe	ormed, general co	mments, instructions to	ontractor, # of crew me	mbers onsite.)	<u> </u>
R&R set up four monitors. News at the batch plant resulted in the pour today consisted of the oil of foundation, all in the existing exc wall forms and also covered the discovered that was not visible part of the part of t	concrete pour startin ontainment walls, two cavated area. CVE re other foundations por	g at 11:45 and concluding aro 138 kv CB foundations, two "omoved the vertical "stiff-backs ured today. i suited up this aft	und 1:15 PM. As detailed in C" foundations, two "D" foun " from the wall forms to allow ernoon in my PPE to evalua	my previous rep dations, and one w them to better o	orts, the "F" cover the e
			en .		
c				•	
			•		
<u> </u>					
IF WORKING IN ENERGIZE					
Dispatcher login, name and time			<del></del>		
Dispatcher logout, name and time	ne: Manny LuHau				
DISCREPANCIES:		<u></u>	MMEDIATE CORRECTIV	E ACTION TAI	KEN:
			•		
No resolution on the 20' ground rod	issue.				
<u> </u>			<del></del>		
	<u></u>		<del></del>	·	
			?		
<del></del>	<del></del>				
<u> </u>		<u> </u>			
DELAYS OR LOST TIME EN	NCOUNTERED:		<del></del>		
EQUIPMENT (working, deli	vered, idle):				
CVE fab crew: Portable toilet (2), for portable wash-down structure, track	rklift, 2 dumpsters, office			boom truck (2). Ne	wman:
OSHA Popordobio Cofety Is	acidonts:		Danamia	hw. T	ime:
OSHA Recordable Safety In	iciuents:		Reported	υ <b>y</b> . Ι	ime:
				<u> </u>	



Russ Johnson

Field Construction Representative

### PACIFICORP OPERATIONS - Field Construction Representative Daily Log PROJECT NAME: Third West Sub - Rebuild DATE: Wednesday, November 23, 2011 PO & Work Order NO. : 3000078050 / 10035803 MAIN CONTRACTOR: Cache Valley Electric Crew Start Time: 6:50 Crew Stop Time: 15:15 Tot Hrs mns: FCR Start Time: 6:30 FCR Stop Time: 15:30 Tot Hrs mns: Use military time format 00:00 **WEATHER CONDITIONS:** Sunny, 35 degrees in the AM and 60 degrees in the PM DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.) R&R set up four monitors. CVE fab crew stripped forms from oil containment walls, circuit breaker foundations and spread footings. Cleaned up forms and re-covered all new concrete with insulated blankets. Newman broke up concrete and placed visqueen and/or gravel over the excavated areas in the exclusion zone. CVE fab crew = 6, Newman = 3, R&R = 1, Wilding = 1. IF WORKING IN ENERGIZED SUBSTATION: Dispatcher login, name and time: Gus Montanez 0630 Dispatcher logout, name and time: Gus Montanez 1530 DISCREPANCIES: IMMEDIATE CORRECTIVE ACTION TAKEN: No resolution on the 20' ground rod issue. CVE to provide per unit price to drill concrete. DELAYS OR LOST TIME ENCOUNTERED: EQUIPMENT (working, delivered, Idle): CVE fab crew: Portable toilet (2), forklift, 2 dumpsters, office trailer, conex, exclusion zone conex (2), tool trailer, crew truck, boom truck (2). Newman: portable wash-down structure, trachoe (2), mini-ex, bobcat, power washer, water truck, compactor, backhoe.



OSHA Recordable Safety Incidents:

Russ Johnson

Reported by:

Time:

Due Date:	162311
Due Time:	9100m

5801 Logan SI. Denver, CO 802(6 • Ph: 303 984-1966 • Fax 303-477-4276 • Toll Free :886 REBI-env
Pagor : 303-189-2098

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CHEMISTRY LABORATORY HOURS: Weekdays: Sam - Spm Metal(s) / Dust RUSH 24 hr3-5 Day	~	{			1	1							1				. 8				= W			
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MICROBIOLOGY LABORATORY HOURS: Weekdaya: 9am - 6	3pm		ISO, +4, freque	1 1		Metats				ح اۃ	r Quantification	E E	3	ER NOTES	H	<u> </u>				1				
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### **Attachment I**

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

#### Asbestos Type

#### Structure Types

A = Amosite	F = Fiber
An = Anthophyllite	B = Bundle
C = Chrysotile	C = Cluster
Cr = Crocidolite	M = Matrix
T = Tremolite	

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

XGB = partly obscured by a grid bar

#### Sizing Conversion

1 length unit = 5 mm on screen = 0.278 micron

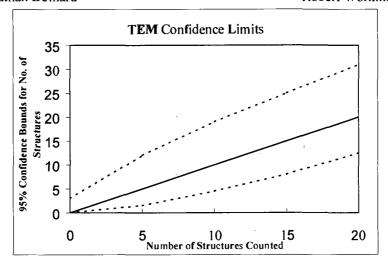
1.80 length units = 0.5 micron

18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

#### **TEM** Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bemard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

### Reservoirs Environmental, Inc. TEM Astrestos Structure Count

Client :	ere !
Sample Type (A=Air, D=Dust):	res 2
Air volume (L) or dust area (cm2)	826
Date received by lab	
Lab Job Number:	7021710
Lab Sample Number:	924026

Scope Alignment	Date Analyzed
Grid storage location	Month Analyzed
Counting rules (ISO, AHERA, ASTM)	AH
Method (D=Direct, l=Indirect, IA=Indirect, ashed)	
Analysis date	11/23/11
Analyzed by	JB.

F-Factor Calculation	(Indirect	Pre	os O	nly):	

1-1 actor Calculation (mollect Fie	ha .	Offig).	
Fraction of primary filter used	-		
Total Resuspension Volume (ml)			
Volume Applied to secondary filter (ml)			

Γ	Grid Grid Opening Structure No. of Structure						Dimensions Identification Mineral Class					1 = yes, blank = no			
	Grid	Grid Opening	Structure Type	No. of Str Primary				Identification	Mineral Class				1 1		
ŀ					Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
	H	H3-6	ND				e de la								. •
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		E3-3	ND								,				
	13	H3-1	ND				:		- 1B,	22/4					·
		63-1	MD						[1]	7			·		
	· .	F3-1.	W						,		s.				
		E3-1	W												
		F5-4	ND												
		E5-4	ND												

Laboratory name:

Magnification
Grid opening area
(mm2)

Scale: 1D =
Primary filter area
(mm2)
Secondary Filter Area

Instrument

Voltage (KV)

Scale: 1L =

(mm2) QA Type JEOL 100 CX (N) S

100 KV

(20KX) 10KX

0.01

0.28 um

Page	1	of	

Reservoirs Environmental, In	C.
TEM Asbestos Structure Cou	nŧ

Laboratory name:	REL
Instrument	JEOL 100 CX (N)S
Voltage (KV)	100 KV
Magnification	(20KX) 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D=	0.056 um
Primary filler area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client:	PERMIT
Sample Type (A=Air, D=Dust):	114
Air volume (L) or dust area (cm2)	
Date received by lab	14.11.26.12.14
Lab Job Number:	
Lab Sample Number:	· 特别级为

Scope Alignment	Date Analyzed
Grid storage location	Month Analyzed
Counting rules (ISO, AHERA, ASTM)	A
Method (D=Direct, l=Indirect, IA=Indirect, ashed)	<b>建设的证据</b>
Analysis date	14123 LA
Analyzed by	JB

F-Factor Calculation (Ind	rect Pre	ps '	Only):			_		
Fraction of primary filter used	Fraction of primary filter used							
Total Resuspension Volume	(mi)			•	:	_		
Volume Applied to secondary (ml)	filter					_		

	Grid	Grid Opening	Structure	No. of Str	ructures	Dimer	nsions	Identification	Mineral Class		-		1 = y	es, blank	= no
	-		Туре	Primary	Total	Length	Width		Amohibole	c ·	NAM	Sketch/Comments	Sketch	Photo	EDS
ŀ	A	H5-4	NO			,									· · · · · · · · · · · · · · · · · · ·
		65-4	ND			Pun	o A	80%	in hut	5	70/	debris			·
		F-5-4	20			Pu		50°/	ben but	5-	7%	debris			
. [		E5-4	ND					·	/						
	13	13-1	NΩ						AB 11/23/	,			_		
		K3-1	ND												<u>:</u>
		1-3-3	ND												: .
		K3-3	ND								÷				
											·				

### Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Caronatory marrie.	The state of the s
Instrument	JEOL 100 CX (N) S
	The service and the service of the s
Voltage (KV)	100 KV
	Hattica in FOSeco abolica distribution and
a company	
Magnification	(20KX) 10KX
Grid opening area	
(mm2)	0.01
\1111122/	Compared to the confidence of
	0.28 um
Scale: IL =	0.28 um
	and the sold of th
Coole: 1D -	0.056 um
Scale: 1D =	TERRESOLUTION OF THE PROPERTY
Primary filter area	
(mm2)	385 L
Secondary Filter Area	TOTAL PROPERTY AND SELECT AND SELECT
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
(mm2)	<b>为他们的特别是一种有种的理解的。</b>
	1. 医内部性4. PROFILE TO \$130 PER CHI
QA Type	
WALL LIDE	The Prince of Section 2015 and Application 18th (Section 2015)

Client:	HE ZEETS
Sample Type (A=Air, D=Dust):	
Air volume (L) or dust area (cm2)	当時有別域
Date received by lab	11 22 12 3
Lab Job Number	
Lab Sample Number	427428

Lab Sample Number:	130		
F-Factor Calculation (Indirect P	reps C	Only):	
Fraction of primary filter used			
Total Resuspension Volume (ml)		·	
Volums Applied to secondary filter			

	<del></del>
Analyzed by	JB!
Analysis date	14 (23 / 1 · 1
Method (D=Direct, l=Indirect, IA=Indirect, ashed)	<b>表情</b>
Counting rules (ISO, AHERA, ASTM)	A
Grid storage location	Month Analyzed
Scope Alignment	Dale Ahalyzed

Grid	Grid Opening	Structure			Dimer	nsions	Identification	Mineral Class	* .		·	1 = v	es, blank	= no
3.10	one opening	Туре	Primary	Total	Length	Width	i de lianozation	Amphibole	c	NAM	Sketch/Comments	Sketch	Photo	EDS
A	63-6	ND												
	F3-6	ND			Pro	A	60/00	tent	5/2	deh.	15			· ·
	E3-6	ND			Par	3	~100%	ibu t	5 %	deb	15			
	C3-6	ND				·								
B	H2-3	ND				:	18	1/23/4				<u> </u>		
	62.3	ND					/							<u> </u>
	H44	ND		1										
	614-4	ND												
						,					·			
													-	

## Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI EST HIST
instrument	JEOL 100 CX (N) S
Voltage (KV)	100 KV
Magnification	(20KX) 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Туре	

LEGE HIS
# <b>470</b>
阿里斯斯
¥27029

F-Factor Calculation (Indirect Pr	eps Only):	
Fraction of primary filter used		
Total Resuspension Volume (mí)		
Volume Applied to aecondary filter (ml)		_

	<b>工程企业和建立企业</b>
Analyzed by	<b>JB</b>
Analysis date	11/23
Msthod (D≃Direct, l=Indirect, IA=tndirect, ashed)	<b>新的</b>
Counting rules (ISO, AHERA, ASTM)	A
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of Str	uctures	Dimer	nsions	Identification	Mineral Class		<del></del>		1 = y	es, blank	= no
		Туре	Primary	Total	Length	Width	raonancation	Ambhilpole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	H2-6	ND												
<del></del>	(02-6	ND			Par	A	60%.	1 hut	5/no	Lebo.	<b>2</b>			
· .	F2-10	W		· .	PUD	3	3 %.	but &	-0/0	debu	<b>&gt;</b>			-
	Ezelo	ND						4/				•		
B	H3-1	ND.						B 1/23/11						
	G3-4	ND					. /	/ / /						
	613-1	NO												·
	F3-4	ND												
1.														

#### Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50<sup>th</sup> structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AITERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

#### **Equations Used for Calculations**

Area Analyzed,  $mm^2 = \# GO \text{ counted } x \text{ Average } GO \text{ Area } (mm)$ 

Concentration,  $s/cc = \frac{\text{\# Asbestos Structures}}{\text{\# GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{1L}{1000cc}$ 

Filter loading,  $s/mm^2 = \frac{\# \text{ Asbestos structures}}{\text{Area Analyzed (nim}^2)}$ 

GO = TEM grid opening



November 25, 2011

Laboratory Code:

RES

Subcontract Number:

NA

Laboratory Report: Project # / P.O. #

RES 224794-1 None Given

Project Description:

Rocky Mtn Power 3rd West Sub Station

Eldon Romney R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 224794-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr

President

#### RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

#### TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

**RES Job Number:** 

RES 224794-1

Client:

R & R Environmental

Client Project Number / P.O.: None Given

Client Project Description: Rocky

Rocky Mtn Power 3rd West Sub Station

Date Samples Received:

November 23, 2011

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

November 25, 2011

Client ID Number	Lab ID N	umber	Area Analyzed	Air Volume Sampled	Number of Asbestos Structures Detected	Analytical Sensitivity	Asbestos Concentration	Filter Loading
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)
3W-112211-N	EM	8 <b>2</b> 8178	0.0700	1142	ND	0.0048	BAS	BAS
3W-112211-S	EM	8 <b>2</b> 817 <b>9</b>	0.0700	1140	ND	0.0048	BAS	BAS
3W-112211-E	EM	8 <b>2</b> 8180	0,0700	<b>113</b> 8	ND	0.0048	BAS	BAS
3W-112211-W	EM	828181	0.0700	1140	ND	0.0048	BAS	BAS
Blank	EM	828182	NA	0	NA			
Blank	EM	828183	NA	0	NA			

NA = Not Analyzed

Filter Material = Mixed Cellulose Ester

ND = None Detected

Filter Diameter = 25 mm

BAS = Below Analytical Sensitivity

Effective Filter Area = 385 sq mm

Average Grid Opening in  $mm^2 = 0.010$ 

Date 2011 11.25 10 19 52 -0700

DATA QA

Due	Date: 1(-25-1)	
Due	Time: 9(5~	

# REILAB RESERVOITS ENVIRONMENTAL, INC. 5801 Logen 8t. Deriver, CO 80216 • Ph; 303 964-1986 • Fex 303-477-4275 • Toli Free :866 RESI-ENV

Page	. 1	of	i	_

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company: 28 a Embronmental	Company:		-1/-1	••/	- 10	Contact:	Day	10	Z., i	11	•		OIVIA			onlact;	evils			
Address: 47 W 9005	Additas:					Phone:	<u> </u>	<u>'E'</u>	9	SELL	e.y.					lorre:	وران	Hu Kay	دنو	<del></del>
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	b Station																			
ASBESTOS LABORATORY HOLIRS: Weekdays: 7ain - 7pni		П			REG	UE8	TED /	ANA	LY8	18			T	V	ALIC	MAT	RIX C	ODE8	T LA	B NOTES:
PLM / PCM (TEM) RUSH (Same Day) PRIORITY (Next Day	)STANOARD						TŤ	$\top$		ĪΤ	T		$\top$		r = A			Bulk • B	<del>                                     </del>	<u></u>
(Rush PCM = 2hr, TEM = 6hr.)					1 1	-				!					st = C	,		aint = D	-ca	I
CHEMISTRY LABORATORY HOURS: Weekdays: Sam - Spm		1	1		-	- } .		-						80	s = 1k	,	V	W = eqN		112511
Metal(s) / Dust RUSH 24 hr3-6 Day		1					1								b = 8			- Food	1	21-301
DODA # 18864-1- # 188-1-1	**Prior notification te required for RUSH	ᇀ	8			_	11		g			_	Ddni	tine '	Water	= DW	Weste	WMer = WW	$\mathcal{T}$	
Fume Scan / TCLP RUSH 8 day10 day	trimetonide*	8	‡ <del>§</del>			8			2	Ш	l i	<b>8</b> 63				0.0			<del> </del>	
Ornanica 24 hr 3 day 8 Day		15	- E		:	Metals of			1		ااء	<b>2</b> 5	**A	STM	8179	E appro	ved wipe	media onty**		· · · · · · · · · · · · · · · · · · ·
MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - 6pm	Λ .		5 5 5 5	1	-    :	<b>₹</b>	1	11	5	읥	를 등	3 3		T		Ť		T	1	
E.coli Ot87:H7, Coliforms, S.aureus24 hr2 Day	3-8 Day	Long raport,	2402 20-1m	\$	respezane ralyte(s)	簏			ㅎ 설	ĕ		on G	1			-				
Salmonalia, Listeria, E.coli, APC, Y A M48 Hr3-6 Day	ı	20		OSHA	g     '				丰層	8		9 4 4	1					1	<b> </b>	
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epply for afterflours, Vreeken4e and holidays.**		8	ફું 🖁	\$	3 3	S-K	bi Č	\$   \$	五十	1 1	.   4	<u></u>	١Ē		4	yo .			-	
Special instructions:  Cilent sample ID number (Sample ID's must be unique)		1 1	TEM - AHERA, Seml-quant, Mic	PCM - 7400A,	METALS - Are	RCRAB, TCLP, WE ORGANICS - METH	Setmonella: +4		Roof:	Colitor	Y & M.	Mold: +	ample Vota	(r) / Avea	Matrix Code	3 co	Date dected	Time Collected	EM Nu	mber (Liberatory Lies Only)
<u> </u>	<u> </u>	-		<u> </u>	3 = 0	<u>e   0</u>	+	MIC	ROBI	OLO	74	<u> </u>	100 0	<del> </del>	<u> </u>	1	m/dd/yy	hh/mm e/p	<del> </del>	
136-11221-4		A	HERA					4		Ш			LL	$tZ_{1}$		$\perp l!b$	1211		82	3178
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3 ~E									$\perp$				111	8						69
4 - W			4										(.)4	0	7	~	1			81
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Number of atmples received: (Addition	nal samples shall be listed on	attach	ned for	ng fbm	t.)		ا	-11		·		!						<u> </u>	L	<del></del> -
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### **Attachment I**

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type	Structure Types
A = Amosite	F = Fiber
An = Anthophyllite	B = Bundle
C = Chrysotile	C = Cluster
Cr = Crocidolite	M = Matrix
T = Tremolite	

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

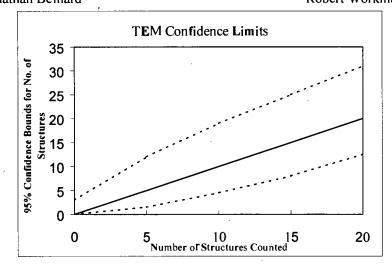
. XGB = partly obscured by a grid bar

Sizing Conversion
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

#### **TEM** Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bemard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

# Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instmment	JEOL 100 CX (N) S
Voltage (KV)	100 KV
Magnification	20KX )i0KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

ROR
A
1142
11/23/11
224794
828178

F-Factor Calculation (Indirect Pre	ps Only):
Fraction of primary filter used	
Total Resuspension Volume (mi)	
Volume Applied to secondary filter (ml)	

Analyzed by	JB
Analysis date	11/25/11
Method (D=Direct, l=Indirect,	
IA=Indirect, ashed)	
Counting rules	4.1
(ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

°Grid	and Grid Opening Structure		No. of Structures		Dimensions		Identification	Mineral Class				1 = yes, blank = no		
		Туре	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	H5-4	ND.												
,	65-4	ND			Pm	n A	70	"he a hut	5	To de	lovis			
	F5-4	ND			Pino	R	80%	bushut	S	· / /	bris	•		
	E5-4	1/D							1					
B	F5-1	ND						B ul	25/4	·				
	E5-1	ND						77	7		,			
	(5-1	ND												
	ESTO	3B 11/25/11			,	·								

#### Reservoirs Environmental Inc. **TEM Asbestos Structure Count**

Laboratory name:	REI
Instrument	JEOL 100 CX (N) S
Voltage (KV)	100 KV
Magnification	20KX i OKX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	<u></u>

A A
ROK
Α
1140
11/23/11
224794
828179

Fraction of primary filter used Total Resuspension Volume (mi) Voluma Applied to secondary filter

Anaiyzed by	JB
Analysis date	11/25/11
Mettiod (D=Direct, l=Indirect, IA≃Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of Str	ructures	Dimer	nsions	Identification	Mineral Class				1 = y	es, blank	= no
- C1.03	Cha Opening	Туре	Primary	Total	Length	Width	racriancador	Amohibole	С	NAM ·	Sketch/Comments	Sketch	Photo	EOS
A	24-3	M>		· · · · · · · · · · · · · · · · · · ·									·	
	B43	ND			) MAS	A	50/ i	about 5	ho d	ebri	5			
	A4-3	ND			Pus	K	50 %	but 5	-0/	Chis				·
	35-4	ND		. `		)		of The						
В	K3-3	ND					4	B1/2/11						
	H3-3	ND					. /							
	F3-3	ND												
								,						

# Reservoirs Envirorunental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX /N) S.
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L=	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	RHR
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	1138
Date received by lab	11 23/11
Lab Job Number:	274774
Lab Sample Number:	828180

Analyzed by	JB
Analysis date	11/25/11
Method (D=0lrect, l=Indirect, lA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Pre	ps Only):	<u> </u>
Fraction of primary filter used		
Total Rasusponsion Volume (ml)		
Volume Appliad to secondary fiftsr (ml)		

Grid	Grid Opening Structure No. of Struct		ructures	Dimensions Identifica		Identification	Mineral Class			1 = yes, blank = no				
		Туре	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Coniments	Sketch	Photo	EDS
A	F4-3	ND							·					• •
	E4-3	ND			Pu	b.A	60	gan but		50	debus			
	C4-3	ND			Pn	スマ	60	Luhut		5%	112			
	B43	ND					. /					_		
B	F3-1	ND				4	1B 116	\/.						
	£3-4	ND					7 1	<i>J.</i>						
	C3-+	M		•										
				:			:							
				-										

# Reservoirs Envirorunental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
instrument	JEOL 100 CX (N) S
Vottage (KV)	100 KV
Magnification	2010X 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	ROR
Samole Type (A=Air, D=Dust):	Α
Air yolume (L) or dust area (cm2)	1140
Date received by lab	11/23/11
Lab Job Number:	274799
Lab Sample Number:	82818

Lab Sample Humber.	1228	100
F-Factor Calculation (Indirect P	reps Only):	
Fraction of primary filter used		
Total Resuspension Volume (ml)		
Volume Applied to secondary filter (ml)		

Analyzed by	JY
Analysis date	1/25/11
Method (D=Direct, l=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of Str	ructures	Dimer	nsions	Identification	Mineral Class				1 = y	es, blank	= no
		Туре	Primary	Total	Length	Width		Amohibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	K5-1	ND						* * 1 * * * : : :			,			
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	K43	ND.						// "						
	H4-3	ND		•								·		
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#### Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50<sup>th</sup> structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

#### **Equations Used for Calculations**

Area Analyzed,  $mm^2 = \# GO \text{ counted } x \text{ Average } GO \text{ Area } (mm)$ 

Concentration,  $s/cc = \frac{\text{\# Asbestos Structures}}{\text{\# OO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Etf. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{1L}{1000cc}$ 

Filter loading,  $s/mm^2 = \frac{\# \ Asbestos \ structures}{Area \ Analyzed \ (mm^2)}$ 

GO = TEM grid opening



November 28, 2011

Laboratory Code:

RES

Subcontract Number:

NA

Laboratory Report: Project # / P.O. #

RES 224878-1 None Given

Project Description:

Rocky Mtn. Power 3rd

West Sub Station

Eldon Romney R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 224878-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely.

Jeanne Spencer Orr

**President** 

#### RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

#### TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

**RES Job Number:** 

RES 224878-1

Client:

R & R Environmental

Client Project Number / P.O.: None Given **Client Project Description:** 

Rocky Mtn. Power 3rd West Sub Station

**Date Samples Received:** 

November 25, 2011

Analysis Type:

**TEM, AHERA** 

Turnaround:

24 Hour

**Date Samples Analyzed:** 

November 26, 2011

Client ID Number	Lab ID No	umber	Area Analyzed	Air Volume Sampled	Number of Asbestos Structures Detected	Analytical Sensitivity	Asbestos Concentration	Filter Loading
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)
3W112311-S	EM	8 <b>2</b> 8708	0.1000	380	ND	0.0101	BAS	BAS
3W112311-E	EM	8 <b>2</b> 8709	0.1000	406	ND	0.0095	BAS	BAS
3W112311-N	EM	8 <b>2</b> 87 <b>1</b> 0	0.1000	<b>3</b> 80	ND	0.0101	BAS	BAS
3W112311-W	EM	8 <b>2</b> 87 <b>11</b>	0.1000	<b>3</b> 66	ND	0.0105	BAS	BAS

NA = Not Analyzed

Filter Material = Mixed Cellulose Ester

ND = None Detected

Filter Diameter = 25 mm

**BAS = Below Analytical Sensitivity** Average Grid Opening in mm<sup>2</sup> = 0.010 Effective Filter Area = 385 sq mm

Digitally signed by Elisha Ellerman DN: CN = Elisha Ellerman, C = US, O = Reservoirs Date: 2011.11.28 14:58:10 -07'00'

DATA QA

Due	Date:_	11.50.11
	Time:_	

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(Rush PCM = 2hr, TEM = 6hr					}	l i		11						Ì		ust =		-		aint = P	<b></b>	
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NOTE: REi entil seatyes incoming temples based Upon information received and will analysis as indicated on this Chain of Quetedy shall constitute an enelytical tervices	net be responsible for errors or emissione in agraement with payment tamus of #IBT 30 de	ealeula ya, crii	tions is	omply t	trem i	the inace Onlam t	unce; emis	r ot ori	ginel seult i	iate. 6 n a 1.1	By algr 3% ma	ing cite nihiy in	nt/eompan terest aure	ny rapa shaige	andrieth	ı egre	on the	A tuba	issien ot	ts following aan	nplea Ibr r	edinested
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Jane 14, 7354 4183 2177

#### Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

#### Asbestos Type

#### Structure Types

	•		
A =	Amosite	F =	Fiber
An =	Anthophyllite	B =	Bundle-
C =	Chrysotile	C =	Cluster
Cr =	Crocidolite	<b>M</b> =	Matrix
Т =	Tremolite		

ND = no structures detected

1 = other structure associated with a matrix

NAM = Non Asbestos Mineral

XGB = partly obscured by a grid bar

### Sizing Conversion

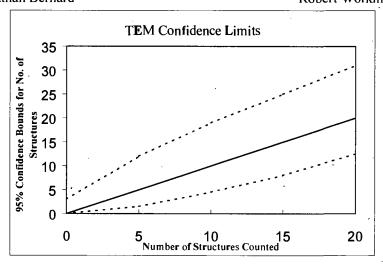
1 length unit = 5 mm on screen = 0.278 micron 1.80 length units = 0.5 micron

18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

#### **TEM** Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

### Reservoirs Envirorunental, Inc. TEM Asbestos Structure Count

	Reservoirs
Laboratory name:	Environmental, Inc.
Instrument	JEOL 100 CX N
Voltage (KV)	100 KV
Magnification	20KX
Grid opening area (mm2)	0.010
Scale: 1L =	0.29 um
Scale: 1D =	0.058 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	N/A
QA Type	Not QA

Client:	R 8 R Environmental					
Sample Type (A=Air, D=Dust):	Α					
Air volume (L) or dust area (cm2)	380 *					
Date received by tab	11/25/2011					
Lab Job Number:	224878					
Lab Sample Number:	828708					

F-Factor Calculation (Indirect P	iela Oilly).
Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	<del>                                     </del>

Analyzed by	n.zimbelman
Analysis date	11/25/2011
Method (D=Dlrect, I=Indirect,	
IA=Indirect, ashed)	D
Counting rules	
(ISO, AHERA, ASTM)	Ahera
Grid stdrage location	Month Analyzed
Scope Alignment	Date Analyzed

| Scope Alignment | I are As Volume tins that the replicably Abusa "das. | Lew Ask Volume. Less Than the Reauekey by Ahrana Kulas. | Kulas.

Client Sample ID Numbert 3W 112311-5

Grid	Grid Grid Opening		No. of St	ructures	Dime	nsions	Identification	Mineral Class		<del>-</del>		1 = y	es, blank	= no
		Туре	Primary	Total	Length	Width	-domainou dom	Amphibole	ie C i	NAM	Sketch/Comments	Sketch	Photo	EDS
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### Reservoirs Environmental, Inc. TEM Asbestos Structure Count

	Reservoirs
Laboratory name:	Environmental,Inc.
<u>Instrument</u>	JEOL 100 CX N
Voltage (KV)	too KV
Magnification	20KX
Grid opening area (mm2)	0.010
Scale: 1L =	0.29 um
Scate: 1D =	0.058 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	N/A
QA Type	Not QA

Tank / 10000000 Ott 20101 C GODIII						
Client:	R 8 R Environmental					
Sample Type (A=Air, D=Oust):	Α					
Air volume (L) or dust area (cm2)	803¥					
Date received by lab	11/25/2011					
Lab Job Number	224878					
Lab Sample Number:	828709					

Analyzed by	a.zimbelman
Analysis date	11/26/2011
Method (D=Oirect, I=Indirect,	
IA=Indirect, ashed)	D
Counting miles	
(ISO, AHERA, ASTM)	Ahera
Grid sterage location	Nionth Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Pre	eps Only):	LpW A
Fraction of primary filter used		
Total Resuspension Volume (ml)		
Volume Applied to secondary filter (mi)		

Client Sample ID Numbert 3W 113SII-E

Grid	Grid Opening	Structure	No. of Str	ructures	Dime	nsions	Identification	Mineral Class				1 = v	es, blank	= no
		Туре	Primary	Total	Length	Width	1	Amphibole	С	NAM	Sketch/Comments	Sketch	Rioto	EDS
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	F1-3	المرب				100	~ 4				/			

### Reservoirs Environmental, inc. TEM Asbestos Structure Count

	Reservoirs
Laboratory name:	Environmental, Inc.
Instrument	JEOL 100 CX N
Voltage (KV)	too KV
Magnification	20KX
Grid opening area (mm2)	0.010
Scale: 1L =	0.29 um
Scale: 1D =	0.058 um
Primary filter area (mm2)	385
Secondary Fitter Area (mm2)	N/A
QA Type	vc

Client:	RSREmirmusita
Sample Type (A≃Aìr, D≔Oust):	Α
Air volume (L) or dust area (cm2)	380*
Date received by lab	11/26/2011
Lab Job Number:	224878
Lab Sample Number:	828710

F-Factor Calculation (Indirect Pre	ps Only):
Frection of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	n.zimbelman
Analysis date	11/26/2011
Method (D=Direct, I=Indirect,	
IA≂Indiect, ashed)	D
Counting rules	
(ISO, AHERA, ASTM)	Altera
Grid starage location	Month Analyzed
Scope Alignment	Date Analyzed

tow Air Utilisms. James in the regained by Meas ruby.

Client Sample ID Nimbert 3W #2511-N

Grid	Grid Opening	Structure	No. of Str	uctures	Dime	nsions	Identification	Mineral Class		· · · · · · · · · · · · · · · · · · ·		1 = ye		= no
Ond	Cha Opening	Туре	Primary	Total	Length	Width	ioentinoation	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	F2-3	M												
	62-3	NU												
	# 2-3	셰												
	K2-3	<del>M</del>												
	K3-4	41												
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	64-4	M				B~	/ <del> </del>							
	44-4	M												

### Reservoirs Environmental, Inc. TEM Ashestos Structure Count

	Réservoirs
Laboratory name:	Environmental, Inc.
Instrument	JEOL 100 CX N
Voltage (KV)	IOO KV
Magnification	20KX
Grid opening area (nım2)	0.010
Scale: 1L =	0.29 um
Scale: 1D =	0.058 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	N/A
QA Type	Not QA

Client:	R 8 R Environmental
Sample Type (A=Air, D=Oust):	Α
Air volume (L) or dust area (cm2)	366*
Date received by lab	11/25/2011
Lab Job Number	224878
Lab Sample Number:	828711

	any dia kaoma familia dispu	altuloko malemilo disoles				
F-Factor Calculation (Indirect Preps Only):	- Plan Asu Vol.					
Fraction of primary filter used	THE LOW HERE VOL.					
Total Resuspension Volume (ml)	Client San	o j				
Voluma Applied to secondary filter (ml)						

Analyzed by	n,zimbelman
Analysis date	11/26/2011
Method (D≈Direct, i=IndirecL IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	Ahe <b>r</b> a
Grid storage tocation	Month Analyzed
  Scope Alignment	Date Analyzed

Client Sample ID Number 3W 112511-W

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				1 = yes, blank = no		
			Primary	Total	Length	Width	roenuncation	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
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	F2-6	44												
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	b3-6	49											,	
	43-6	ETQ												

#### Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

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micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

**Bundle:** is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50<sup>th</sup> structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

#### **Eauations Used for Calculations**

Area Analyzed,  $mm^2 = \# GO \text{ counted } x \text{ Average } GO \text{ Area } (mm)$ 

Concentration,  $s/cc = \frac{\# \text{ Asbestos Structures}}{\# \text{ GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{1L}{1000cc}$ 

Filter loading, s/mm<sup>2</sup> = # Asbestos structures Area Analyzed (mm<sup>2</sup>)

GO = TEM grid opening